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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,277	12/21/2000	William Eric Main	SC11507ZC	2788

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MOTOROLA INC
AUSTIN INTELLECTUAL PROPERTY
LAW SECTION
7700 WEST PARMER LANE MD: TX32/PL02
AUSTIN, TX 78729

EXAMINER

WANG, TED M

ART UNIT	PAPER NUMBER
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2634

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DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/746,277

Applicant(s)

MAIN ET AL.

Examiner

Ted M Wang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/21/2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-27 is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-27 are pending in the application.

Examiner's comments

2. Examiner suggests that insert the following titles into the specification.
 - Insert title "TECHNICAL FIELD OF THE INVENTION" into page 1 line 3.
 - Insert title "BACKGROUND OF THE INVENTION" into page 1 line 6 between the end of the first paragraph and the start of the second paragraph.

Specification

3. The disclosure is objected to because of the following informalities: Page 9 line 1 the reference number "88" should be changed to "8".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ma (PT6,133,802) in view of Brun et al. (PT4,267,602).

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- In regard claim 1, Ma discloses an injection-locked demodulator circuit (Fig.1 and 2, and column 4 line 10 – column 5 line 4 except specifically teaching that an Automatic Frequency Control (AFC) that can be disabled could be included in the demodulator.

Brun et al. Discloses a PLL synthesizer tuning system with an Automatic Frequency Control (AFC) that can be disabled or “ON” or “OFF” (Fig.1, and columns 7 and 8 claim 1) in order to enhance the frequency acquisition.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Ma's injection-locked demodulator circuit in view of Brun's disclosure in order to enhance the frequency acquisition.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ma (PT6,133,802) in view of Brun et al. (PT4,267,602) and further in view of Delzer et al. (PT6,369,659).

- In regard claim 2, Ma discloses an injection-locked demodulator circuit that an injection-locked oscillator having a first input for receiving a modulated signal (Fig.1 and 2 and element 100); a multiplier having a first input for receiving the modulated signal and a second to input for receiving a signal generated by the injection-locked oscillator (Fig.1 element 102) except specifically teaching that a tuning circuit coupled to an output of the multiplier for receiving first and second input signals; and a filter having an input coupled to an output of the tuning circuit and an output coupled to a second input of the injection-locked oscillator.

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Brun et al. Discloses a PLL synthesizer tuning system with an Automatic Frequency Control (AFC) or tuning circuit that can be disabled or "ON" or "OFF" (Fig.1, and columns 7 and 8 claim 1) in order to enhance the frequency acquisition.

Delzer et al. Discloses a clock recovery system a filter having an input coupled to an output of the tuning circuit and an output coupled to a second input of the injection-locked oscillator (Fig. 1 element 30, and column 3 line 46 – column 4 line 20) in order to facilitate the free running frequency adjustment.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Ma's injection-locked demodulator circuit in view of Brun's disclosure in order to enhance the frequency acquisition and further in view of Delzer's disclosure in order to facilitate the free running frequency adjustment.

Allowable Subject Matter

7. Claims 3-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 15-27 are allowed.

9. The following is an examiner's statement of reasons for allowance.

- The prior art fails to teach apparatus of Claims 15, 19, 24-27 that specifically comprises the following:

-- a first current path from the first input terminal to the output terminal; a second current path from the second input terminal to the output terminal as recited; and

- first and second switches coupled for receiving a signal that disables the respective first and second current paths from providing the current that is the function of the difference of the differential current as recited;
- first and second transistors that form a first current mirror and have first current conduction terminals commonly coupled to a first power supply conductor and control terminals commonly coupled to a second current conduction terminal of the first transistor and to the first input terminal;
- third and fourth transistors that form a second current mirror and have first current conduction terminals commonly coupled to a second power supply conductor and control terminals commonly coupled to a second conduction terminal of the third transistor and to a second current conduction terminal of the second transistor;
- fifth and sixth transistors that form a third current mirror and have first current conduction terminals commonly coupled to the first power supply conductor and control terminals commonly coupled to a second current conduction terminal of the sixth transistor and to the second input terminal;
- seventh and eighth transistors that form a fourth current mirror and have first current conduction terminals commonly coupled to the second power supply conductor and control terminals commonly coupled to a second conduction terminal of the eighth transistor and to a second conduction terminal of the fifth transistor; and

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-- ninth and tenth transistors that form a fifth current mirror and have first current conduction terminals commonly coupled to the first power supply conductor and control terminals commonly coupled to a second conduction terminal of the tenth transistor and to a second as recited.

-- transferring a first signal received at a first input to an output through a first path; transferring a second signal received at a second input to the output through a second path for combining with the first signal in generating the AFC signal; and exceeding a threshold in the AFC before generating the dead band region by transferring the first and second signals to the output as recited.

-- enabling a tuning circuit for generating the AFC signal as a function of a difference in first and second currents supplied to the tuning circuit when data is not present in the modulated signal; and disabling the AFC signal when data is present in the modulated signal as recited.

-- providing the injection-locked demodulator with an unmodulated signal at the carrier frequency of the modulated signal; providing the injection-locked demodulator with a modulated signal; and AFC signal in the presence of the modulated signal to prevent detuning the injection-locked demodulator as recited.

Ma (PT6,133,802), Brun et al. (PT4,267,602), and Delzer et al. (PT6,369,659) do not teach above features as recited.

Conclusion

10. Reference 6,121,847, 5,703,478, and 5,650,749 are cited because they are put pertinent to the Injection locked oscillator, AFC, and current mirror circuitry. However, none of references teach detailed connection as recited in claim.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M Wang whose telephone number is (703) 305-0373. The examiner can normally be reached on 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Chin can be reached on (703) 305-4714. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Ted M Wang
Examiner
Art Unit 2634

Ted M. Wang


STEPHEN CHIN
SUPERVISORY PATENT EXAMINEE
TECHNOLOGY CENTER 2600